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AERIAL PHOTOGRAPHIC ANALYSIS OF NINE PRIORITY CERCLA HAZARDOUS WASTE SITES

Minneapolis-St. Paul, Minnesota

by

M. M. O'Toole
Environmental Programs
Lockheed Engineering and Management Services Company, Inc.
Las Vegas, Nevada 89114

Contract No. 68-03-3245

Project Officer

C. E. Lake
Advanced Monitoring Systems Division
Environmental Monitoring Systems Laboratory
Las Vegas, Nevada 89114

ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89114

ABSTRACT

This report presents a historical and current aerial photographic analysis of nine hazardous waste sites in the Minneapolis-St. Paul area of Minnesota. All nine sites are listed on the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). These nine sites in the Minneapolis-St. Paul area include facilities owned by Boise Cascade/Onan/Medtronics in Fridley; General Mills/Henkel Corp., Union Scrap, and Whittaker Corp. in Minneapolis; Joslyn Manufacturing and Supply in Brooklyn Center; Koppers Coke in St. Paul; MacGillis and Gibbs Co./Bell Lumber and Pole Co. in New Brighton; and NL Industries/Taracorp/Golden Auto and Reilly Tar and Chemical Corp. in St. Louis Park. Black-and-white and color photographs from 1940 to 1984 were used in this analysis to document the physical conditions and potential environmental hazards through time at these sites. This report is one of two reports that cover CERCLA sites in Minnesota.

Analysis showed that all sites contained drums and/or tanks and showed signs of ground stains at some point during their analysis periods. Solid waste disposal was observed at all sites with the exception of General Mills/Henkel Corp. and at least one waste pond was noted at each site except at NL Industries, Union Scrap, and Whittaker Corp. Possible waste burial was noted at the MacGillis and Gibbs/Bell Lumber and Pole Co., Reilly Tar and Chemical, and Whittaker Corp. sites. The potential for migration of contaminates away from site boundaries was seen at the Joslyn Manufacturing, Koppers Coke, and Reilly Tar and Chemical sites.

Only the MacGillis and Gibbs/Bell Lumber and Pole Co. and Union Scrap appear to be still active. However, some sites now contain new industries which are currently active.

The analysis was performed at the request of the U.S. Environmental Protection Agency's Environmental Services Division in Region 5 and Office of Emergency and Remedial Response in Washington, D.C. Personnel at the Agency's Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, carried out the analyses.

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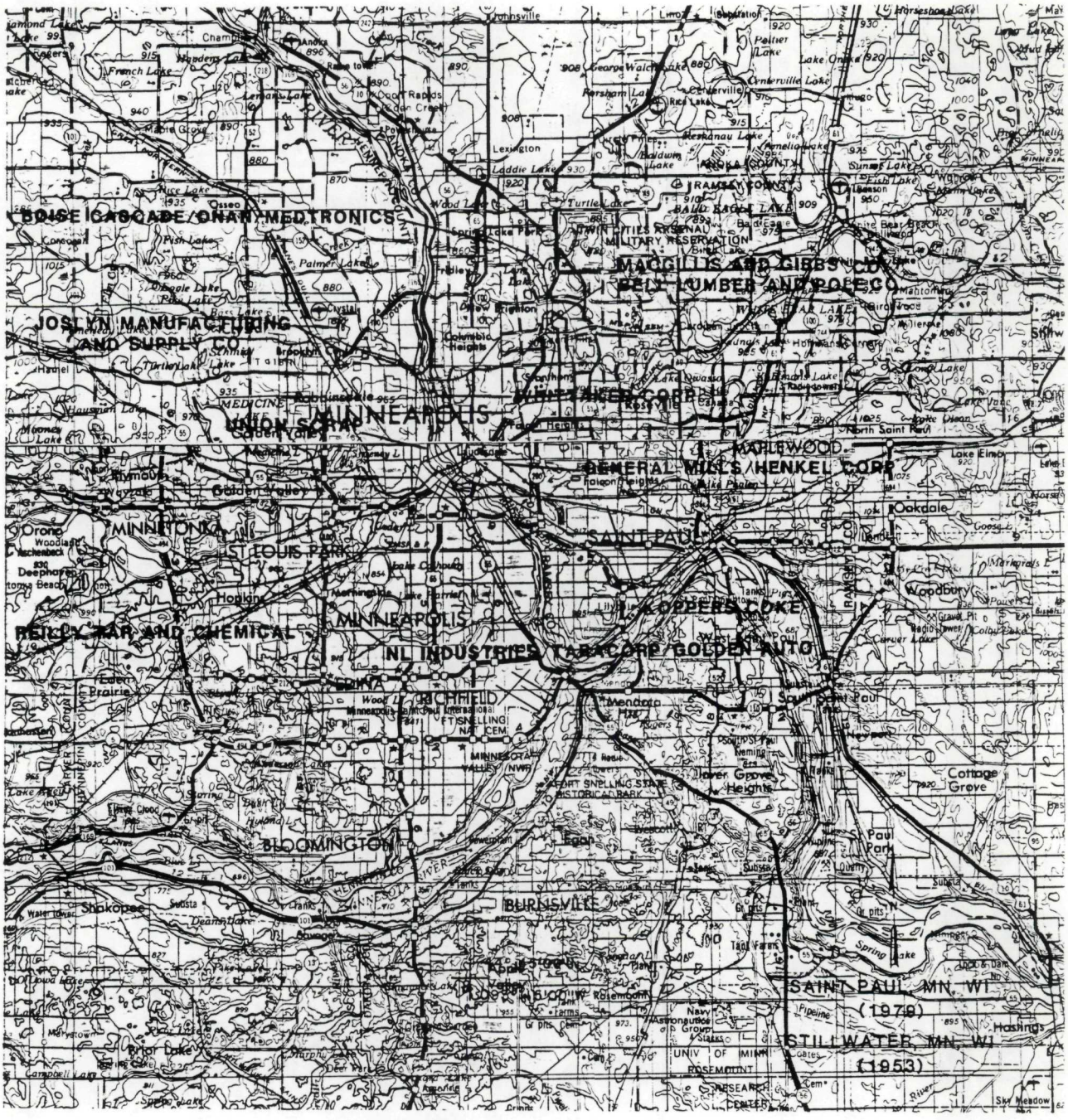

Figure 1. Study area location, Minneapolis-St. Paul area, Minnesota. Scale 1:250,000.

INTRODUCTION

The aerial photographs presented in this report document the physical conditions and potential environmental hazards at nine sites in and around Minneapolis-St. Paul, Minnesota (Figure 1). This report is one of two reports which cover the State of Minnesota. Those sites located outside of the Minneapolis-St. Paul area are covered under U.S. Environmental Protection Agency (EPA) Report TS-AMD-84025/84700-7. All sites are on the National Priorities List and are listed as hazardous waste sites under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) or "Superfund." Background information on the sites was provided by the U.S. Environmental Protection Agency's (EPA's) Region 5 office, and the Hazardous Waste National Priorities List (U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, 1983). Black-and-white and color photographs from 1940 to 1984 were used in this analysis.

The nine sites covered in this report are listed below with a brief description:

Boise Cascade/Onan/Medtronics site covers approximately 75 hectares (185 acres) in Fridley, Minnesota. From the mid-1920's to the early 1960's Boise Cascade preserved railroad ties and poles with creosote and pentachlorophenol. Ground water, soil, and nearby creek sediments are contaminated. The northern portion of the site is now owned by Onan Corp. and the remainder by Medtronics, Inc.

General Mills/Henkel Corp. site covers approximately 4 hectares (10 acres) in an industrial and residential area of Minneapolis, Minnesota. The General Mills Corp. operated a research laboratory there from 1947 to 1962 and during that time disposed of 1,000 gallons per year of solvents into a dry well on the site to a depth of about 3 meters (10 feet). The facility is now owned by the Henkel Corp. Analysis shows soils, shallow ground water, and a deeper aquifer to be contaminated with volatile halogenated hydrocarbons.

Joslyn Manufacturing and Supply Co. covers 11 hectares (27 acres) in Brooklyn Center, Minnesota. The site is a wood-treating facility which operated from 1920 to the 1940's under the name of Naugle Pole and Tie Co., from the 1940's to the 1960's under the name of Consolidated Pole Treating Co., and from the 1960's to 1980 as Joslyn Manufacturing and Supply Co. The facility is known to have discharged contaminated waste water into the southernmost of the Twin Lakes, and into unlined waste ponds. Waste sludge is also buried at the site. Surface water sediment and nearby residential wells are contaminated.

Koppers Coke covers approximately 18 hectares (45 acres) in the Midway Industrial Park in St. Paul, Minnesota. From 1911 to 1979 Koppers operated a facility that converted coal to coke and produced such by-products as coal tar and coal tar distillates. Wastes were discharged to the ground in unlined earthen pits. Soils and ground water were contaminated.

MacGillis and Gibbs Co./Bell Lumber and Pole Co. are two separate wood-treatment facilities on adjacent parts of a 27.5-hectare (68-acre) site in New Brighton, Minnesota. Processes at the facilities involve the use of creosote, pentachlorophenol, and a chrome-copper-arsenic solution. Between 1920 and 1974 sludges from the processing operations were discharged into a surface impoundment in a wetland on the site. Contaminates from the disposal area have migrated into surrounding ground water.

NL (National Lead) Industries, Inc., operated a lead smelter in St. Louis Park, Minnesota, from the 1930's to August 1979. The site covers approximately 7 hectares (17 acres) and is currently owned by Golden Auto Parts, Inc., and by Taracorp, Inc., which closed the smelter in 1982. Large amounts of lead slag were buried at the site.

Reilly Tar and Chemical Corp. operated a coal tar distillation and wood preserving plant on 32 hectares (80 acres) in St. Louis Park, Minnesota, from 1917 to 1972. Wastes from the operation were disposed of on the site in a network of ditches that discharged into an adjacent wetland. Soil and ground water below the wetland and the southern portion of the site are heavily contaminated.

Union Scrap owns and operates a battery recycling facility on a 0.4-hectare (1-acre) site in Minneapolis, Minnesota. Battery acid was reportedly dumped on the ground or into sewers. In 1973 the company began to store lead-containing wastes in piles. The piles are now covered but the bottoms are exposed. There is a potential for lead contamination of ground water and airborne lead levels exceed normal background levels.

The Whittaker Corp. site covers approximately 8 hectares (20 acres) in northeast Minneapolis, Minnesota. Industrial operations have been conducted at the site since the mid-1940's. Whittaker has owned most of the site since 1957 when it acquired American Petrochemical Co. Materials manufactured and/or packaged at the site include paints, industrial coatings, and antifreeze. Wastes such as paints, paint sludges, paint segments, solvents, and still bottoms are thought to be buried, discharged to surface water, or spilled at the site. A portion of the site was sold to Tooltech, a manufacturer of rotary drill pipe in 1977.

There are a total of 12 NPL sites identified in the Minneapolis-St. Paul area as of August 1983. The three sites not presented in this report are listed in Table 1 with references to additional EPA reports in which they are included.

TABLE 1. OTHER NPL SITES IN MINNEAPOLIS-ST. PAUL, MN, AREA AND EPA REPORTS
(As of August 1983)

Site	EPA Report
FMC Corp. Fridley, MN	TS-AMD-82090
New Brighton/Arden Hills, New Brighton, MN	TS-AMD-82005-h
Oakdale Dump, Oakdale, MN	TS-AMD-82005-h

The analysis was performed at the request of the U.S. Environmental Protection Agency's Environmental Services Division in Region 5 and Office of Emergency and Remedial Response in Washington, D.C. Personnel at the Agency's Environmental Monitoring Systems Laboratory in Las Vegas, Nevada carried out the analysis.

METHODOLOGY

Stereoscopic pairs of historical and current aerial photographs are used to perform an intensive analysis. Stereo viewing enhances the interpretation because it allows the analyst to observe the vertical as well as horizontal spatial relationships of natural and cultural features. Stereoscopy is also an aid in distinguishing between the various shapes, tones, textures, and colors that can be found within the study area.

Evidence of waste burial is a prime consideration when conducting a hazardous waste analysis. Burial and dumping of hazardous materials could result in leachate or seepage which often threatens existing surface or ground-water sources. Pools of unexplained liquid are routinely noted because they can indicate seepage from buried wastes and may enter drainages that allow contaminants to move off the site. The presence or absence of spills, spill stains, and vegetation damage within a site is an excellent indicator of how well hazardous materials are being handled at that site. Trees and other forms of vegetation that exhibit a marked color difference from surrounding members of the same species are labeled "dead" or "stressed" based upon the degree of noticeable variation. Vegetation is so labeled only after a careful consideration of the season in which the photography was acquired.

Drainage analysis is conducted in order to determine the direction a spill or surface runoff would follow. Direction of drainage is determined from analysis of the photographs and from U.S. Geological Survey topographic maps. Whenever possible, the Survey's 7.5-minute quadrangle maps (scale 1:24,000) are used to show site location and to provide geographic and topographic information. Oblique photos showing site boundaries and local drainage are included in this report. Oblique photography provides a panoramic view showing vertical relief without the necessity of a stereoscope. The following table provides specifications of the photographs used in this report.

TABLE 2. AERIAL PHOTOGRAPHY SPECIFICATIONS

Site name, location, and geographic coordinates	Figure	Date of acquisition	Original scale	Film type*	Photo source**	
Boise Cascade/Onan/Medtronics	3	5/08/47	1:17,000	B&W	EROS	
Fridley, MN	4	11/02/66	1:24,000	B&W	EROS	
(45°05.95'N, 93°14.00'W)	5	10/16/72	1:31,860	B&W	EROS	
	6	7/18/84	1:6,000	Color	EMSL	(84058)
	7	7/18/84	Oblique	Color	EMSL	(84058)
General Mills/Henkel Corp.	9	10/15/53	1:20,000	B&W	ASCS	
Minneapolis, MN	10	5/06/57	1:20,000	B&W	ASCS	
(44°59.40'N, 93°13.37'W)	11	10/14/64	1:20,000	B&W	ASCS	
	12	10/28/69	1:35,000	B&W	ASCS	
	13	7/18/84	1:6,000	Color	EMSL	(84058)
Joslyn Manufacturing and	15	7/18/40	1:23,000	B&W	ASCS	
Supply Co.	16	5/06/57	1:20,000	B&W	ASCS	
Brooklyn Center, MN	17	10/28/69	1:35,000	B&W	ASCS	
(45°02.70'N, 93°20.00'W)	18	9/25/79	1:40,000	B&W	ASCS	
	19	7/18/84	1:6,000	Color	EMSL	(84058)
	20	7/18/84	Oblique	Color	EMSL	(84058)
Koppers Coke	22	6/25/40	1:20,000	B&W	ASCS	
St. Paul, MN	23	5/10/57	1:20,000	B&W	ASCS	
(44°58.17'N, 93°09.15'W)	24	9/08/70	1:40,000	B&W	ASCS	
	25	4/18/74	1:38,000	B&W	ASCS	
	26	7/20/84	1:6,000	Color	EMSL	(84058)
MacGillis & Gibbs Co./	28	10/30/53	1:20,000	B&W	ASCS	
Bell Lumber & Pole Co.	29	9/08/70	1:40,000	B&W	ASCS	
(45°03.50'N, 93°11.68'W)	30	7/23/82	1:10,740	CIR	EPIC	
	31	9/21/84	1:8,400	Color	EMSL	(84058)
	32	9/21.84	Oblique	Color	EMSL	(84058)
NL Industries/Taracorp/	34	6/29/40	1:20,000	B&W	ASCS	
Golden Auto	35	10/15/53	1:20,000	B&W	ASCS	
St. Louis Park, MN	36	10/14/64	1:20,000	B&W	ASCS	
(44°56.17'N, 93°21.82'W)	37	9/21/79	1:40,000	B&W	ASCS	
	38	7/18/84	1:6,000	Color	EMSL	(84058)
	44	7/18/84	Oblique	Color	EMSL	(84058)
Reilly Tar & Chemical Corp.	39	6/29/40	1:20,000	B&W	ASCS	
St. Louis Park, MN	40	10/15/53	1:20,000	B&W	ASCS	
(44°56.50'N, 93°22.33'W)	41	10/14/64	1:20,000	B&W	ASCS	
	42	9/21/79	1:40,000	B&W	ASCS	
	43	7/18/84	1:6,000	Color	EMSL	(84058)
	44	7/18/84	Oblique	Color	EMSL	(84058)

(continued)

TABLE 2. (continued)

Site name, location, and geographical coordinates	Figure	Date of acquisition	Original scale	Film Type*	Photo source**	
Union Scrap	46	10/15/53	1:20,000	B&W	ASCS	
Minneapolis, MN	47	10/14/64	1:20,000	B&W	ASCS	
(44°59.73'N, 93°16.80'W)	48	10/28/69	1:35,000	B&W	ASCS	
	49	9/25/79	1:40,000	B&W	ASCS	
	50	7/18/84	1:6,000	Color	EMSL	(84058)
	51	7/18/84	Oblique	Color	EMSL	(84058)
Whittaker Corp.	53	6/15/40	1:20,000	B&W	ASCS	
Minneapolis, MN	54	5/06/57	1:20,000	B&W	ASCS	
(45°01.58"N, 93°16.13'W)	55	10/28/69	1:35,000	B&W	ASCS	
	56	9/25/79	1:40,000	B&W	ASCS	
	57	7/18/84	1:6,000	Color	EMSL	(84058)
	58	7/18/84	Oblique	Color	EMSL	(84058)

*Film type identification:

B&W: Black-and-white

CIR: Color Infrared

**Photo source identification:

ASCS: U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service.

EMSL: U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Las Vegas, Nevada.

EPIC: Environmental Photo Interpretation Center, Warrenton, Virginia.

EROS: U.S. Department of the Interior, Geological Survey, Earth Resources Observation Systems Data Center, Sioux Falls, South Dakota.

Prints made available from all data sets are included in this report. The scales of these prints range from 1:600 (1 inch equals 50 feet) to 1:8,000 (1 inch equals 666 feet). All photographs are free of clouds and cloud shadows, and are of the finest quality obtainable.

Aerial Photographic Analysis of Nine Priority CERCLA Hazardous Waste Sites.
TS-AMD-84025/84700-6, 4/85

GENERAL MILLS/HENKEL CORP. (for entire document see MacGillis & Gibbs, MN.
MINNEAPOLIS, MINNESOTA W.I

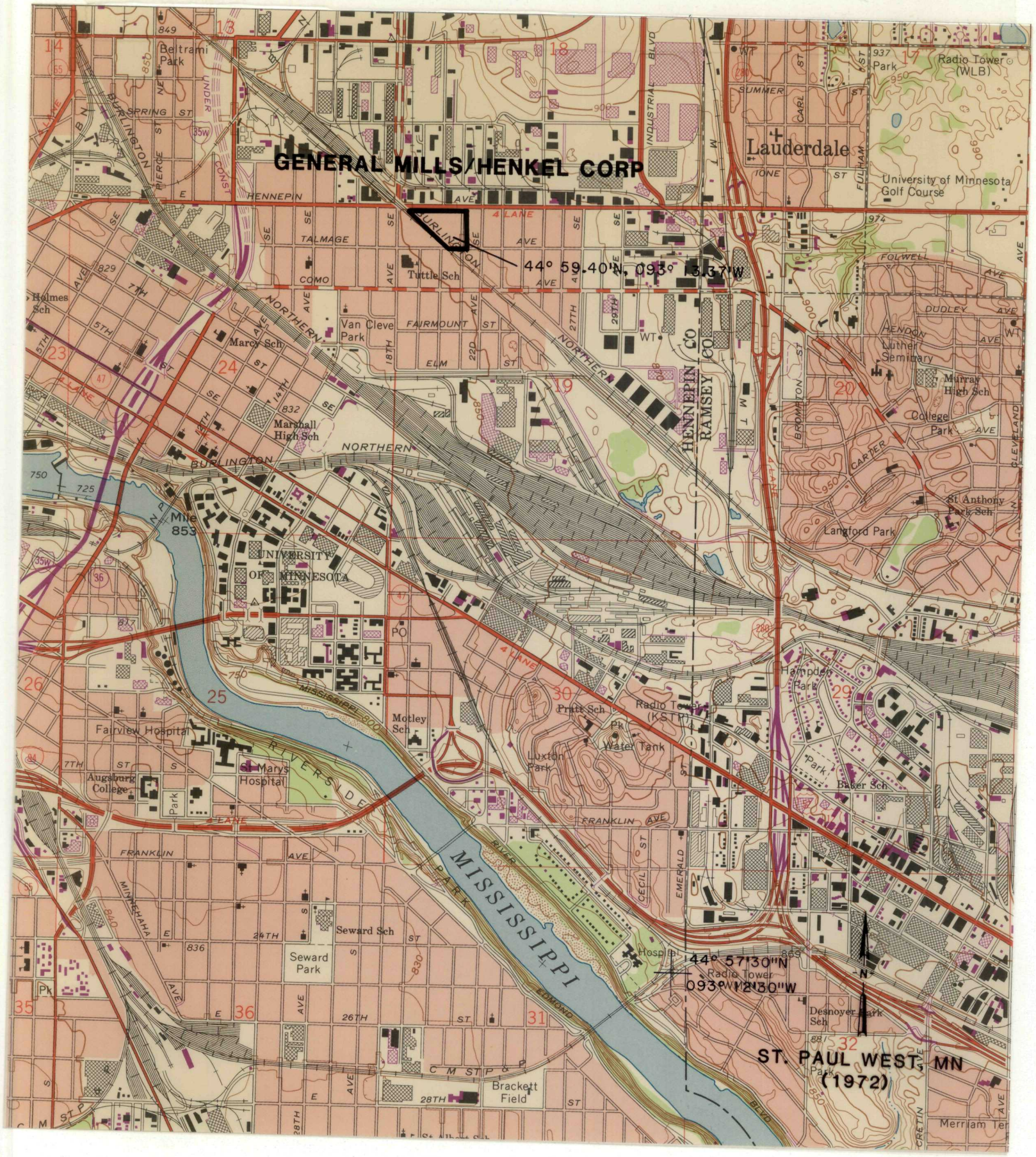

Figure 8. Site location, General Mills/Henkel Corp., Minneapolis, Minnesota. Scale 1:24,000.

GENERAL MILLS/HENKEL CORP.

Analysis Summary

The General Mills/Henkel Corp. covers approximately 4 hectares (10 acres) in an industrial and residential area of Minneapolis, Minnesota (Figure 8). The triangular shaped site is located along the Burlington Northern Railroad and is bordered to the north by Hennepin Avenue. Local and regional drainage is to the south along the Mississippi River which flows 1.8 kilometers (1.1 miles) southwest of the site. There are no surface drainages seen at the site.

Black-and-white and color photographs from 1953, 1957, 1964, 1969, and 1984 were used in this analysis. Analysis shows the site changed somewhat in configuration throughout the analysis period. Construction of two new buildings and two building additions was noted between 1957 and 1964. A contained area for liquid storage tanks is observed in 1953 and 1957 (Figures 9 and 10). The tanks were removed by 1964 and the same area was used for drum staging thereafter. Current photographs show some of the drums being stored in that area to be rusted and leaking.

October 15, 1953

Figure 9 shows the site, operated at this time by General Mills, to be in full operation. The facility consists of a large building complex in the central portion of the site, parking along the eastern and northern boundaries, and a diked area containing 2 horizontal and 10 vertical tanks. Four small waste ponds are noted adjacent to a small building located southeast of the tank containment. South of the main laboratory buildings, two liquid storage tanks, one vertical and one horizontal, are stored uncontained. What is apparently the company office is situated in a separate building along the eastern margin of the site.

INTERPRETATION CODE

BOUNDARIES AND LIMITS

- FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- FENCE
- PROPERTY LINE
- GATE/ACCESS POINT
- SECTION CORNER

DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

TRANSPORTATION/UTILITY

- VEHICLE ACCESS
- RAILWAY
- PIPELINE
- POWERLINE

SITE FEATURES

- DIKE
- STANDING LIQUID
- SL STANDING LIQUID (SMALL)
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OD OPEN DUMP
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- WD WASTE DISPOSAL AREA

Figure 9. General Mills/Henkel Corp., October 15, 1953. Approximate scale 1:2,000.

May 6, 1957

Figure 10 shows a few changes at the site since 1953 (Figure 9). One of the vertical tanks in the tank containment area has been removed. The four waste ponds previously located southeast of the tank containment are no longer evident.

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Figure 10. General Mills/Henkel Corp., May 6, 1957. Approximate scale 1:2,000.

October 14, 1964

Figure 11 shows the site after the facility was sold to Henkel Corp. The site now contains two new buildings and two new additions to the main building complex. The liquid storage tanks and the confinement dike have been removed from the northwest corner of the site. The area has been leveled and four cement slabs now cover that area.

INTERPRETATION CODE

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- LG — LAGOON
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- OF — OUTFALL
- SD — SLUDGE
- ST — STAIN
- SW — SOLID WASTE
- TR — TRENCH
- WD — WASTE DISPOSAL AREA

Figure 11. General Mills/Henkel Corp., October 14, 1964. Approximate scale 1:2,000.

October 28, 1969

Figure 12 shows only one significant change at the site since the last overflight (Figure 11). The area where cement slabs were seen in 1964 has been expanded and is a drum staging platform. The scale of the original photograph (1:35,000) precludes estimating the number of drums being stored there.

INTERPRETATION CODE

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- SD — SLUDGE
- ST — STAIN
- SW — SOLID WASTE
- TR — TRENCH
- WD — WASTE DISPOSAL AREA

Figure 12. General Mills/Henkel Corp., October 28, 1969. Approximate scale 1:3,500.

July 18, 1984

Figure 13 shows some changes at the site since 1969 (Figure 12). The drum staging area contains approximately 400 drums. Most of the drums are stacked neatly and appear to be in good condition. However, at least 60 drums are rusting, piled haphazardly, and appear to be leaking. Three vertical liquid storage tanks are now stored in a walled containment in the drum staging area. There is a dark liquid surrounding the tanks indicating that some spillage has occurred. A second area of apparent spillage is seen east of the tanks, between the parking area and one of the site buildings. The two storage tanks seen at the southern end of the main building since 1953 (Figures 9-12) have been removed. Additionally, a wellhead has been established near the southeast corner of the site.

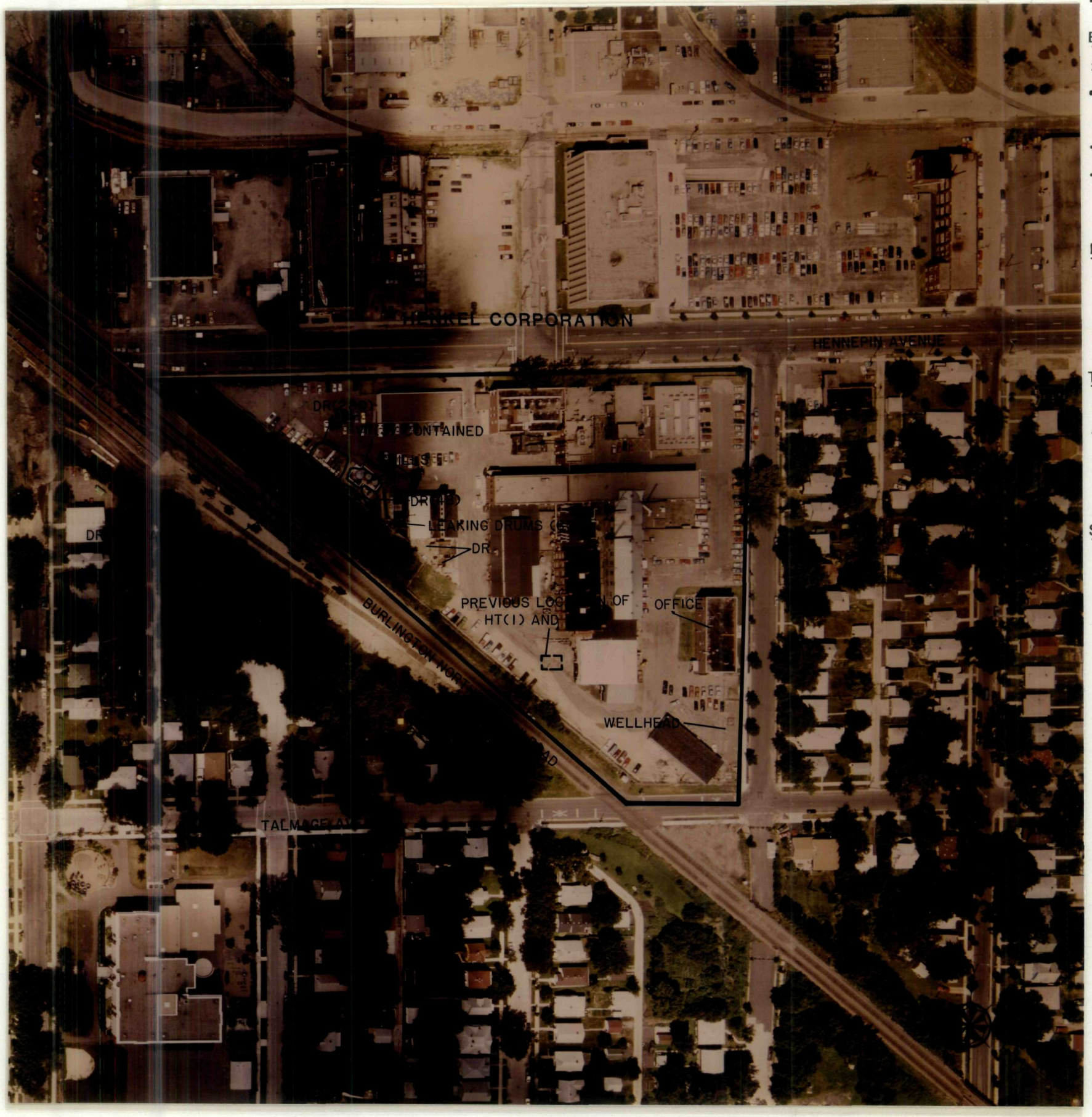

Figure 13. General Mills/Henkel Corp., July 18, 1984. Approximate scale 1:2,000.

INTERPRETATION CODE

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- OF — OUTFALL
- SD — SLUDGE
- ST — STAIN
- SW — SOLID WASTE
- TR — TRENCH
- WD — WASTE DISPOSAL AREA